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David Capano

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10/18/2005

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EXAMINER

POPE, DARYL C

ART UNIT

PAPER NUMBER

2632

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 09/977,067 | Applicant(s) CAPANO ET AL. | |
| | Examiner DARYL C. POPE | Art Unit 2632 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Applicant's arguments, as stated in the appeal brief filed 8/8/2005, with respect to claims 1-25 have been fully considered and are persuasive. The finality of claims 1-25 has been withdrawn.

ART REJECTION:

Claim Rejections - 35 USC § 103

3. **Claims 1-3, 5-6, and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Struthers(6,378,554).**

-- In considering **claim 1**, the claimed subject matter that is met by Struthers includes:

1) the plurality of grinder pump stations at a plurality of different first locations is met by the plurality of sewage sumps(10) at each of a plurality of locations in the network(30)(see: figure 2, column 3, lines 33-42);

2) the obtaining data regarding the plurality of grinder pump stations and transferring via a communications network to a central computing unit is met by the sump controller(20) obtaining operating data such as speed and flow data and reporting this data to a network controller(46, column 6, lines 7-24) via communications pathway(50, column 4, lines 24-36).

With regards to the content of the transferred data, although Struthers does not specifically state that the transferred data includes maintenance warnings Struthers does state that an "emergency full" condition would have implied pump or controller

Art Unit: 2632

malfunction(see: column 6, lines 1-6). In view of this, it would have been obvious to one ordinary skill in the art at the time the invention was made to maintenance warning data would have been included in the data sent to the controller(46) by the controller(20), since the speed and flow rate data of any one sump(10) would have needed to include indicators of malfunction, such that the controller(46) would have been able to take advantage of and manage the volume of sewage flowing into the system by other sumps at other locations based on the malfunction of this otherwise normally operating sump(10).

For example, once indicated to the controller(46) that a sump at one location has a malfunction, such as an emergency full condition, this would have allowed the controller to cause an increase in flow of other sumps that would have normally been in slower flow or off states, thereby taking the place of the malfunctioning sump.

-- With regards to **claim 2**, since the network controller(46) manages the volume of sewage flowing in the system at any given time(see: column 6, lines 22-24), it would have been obvious to one of ordinary skill in the art at the time the invention was made to enable the controller(46) to access data at the first locations during the transferring of data, since this would have been necessary in order to efficiently manage the entire network of sumps(10).

-- With regards to **claim 3**, the automatically transmitting data from the first locations to the central computing unit is met by the controllers(20) reporting data to the network controller(see: column 6, lines 7-14).

Art Unit: 2632

-- With regards to **claims 5-6**, the comparing the operating parameter to a predetermined criteria to determine maintenance warnings and comparing the parameter over time to determine the maintenance warning are met, since the predetermined criteria would have included an emergency full condition which would have been an indication of pump or controller failure and as well the condition would have been reported if the condition could not have been cleared, which implies that it would have existed for a predetermined period of time to allow the possibility of clearance before it would have been reported(see: column 6, lines 1-6).

-- In considering **claim 22**, it would have been obvious to one of ordinary skill in the art at the time the invention was made to repair the pump station in response to the maintenance warnings, since the purpose of the alarm would have been to alert the malfunction of the station, and therefore repair would have been necessary in order to return the station to normal operation.

-- **Claim 23** recites subject matter that is met as discussed in claim 1 above.

4. Claims 4,7, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Struthers in view of Eckley(4,740,963).

-- **Claims 4 and 7** recite subject matter that is met by Struthers as discussed in claim 1 above, as well as:

1) the processor is met by the computer controller(20).

- **Struthers does not show:**

1) the communication network comprising a telephone line;

Art Unit: 2632

2) the modem board connectable to the processor and allowing a homeowner use a telephone by overriding the transfer of data over the telephone line to the central computing unit;

Use of telephone lines as a communications network for transmitting meter information signals as well as voice signals(see: column 1, lines 30-43), and as well overriding of data signal transfer over the telephone line to allow homeowner use of a telephone is well known in the art. In related art, Eckley discloses a system for transmitting voice and data over a conventional telephone line, wherein the system is enabled to selectively switch modes from a composite signal which includes data and voice signals to a conventional telephone operating mode in which digital data signals are bypassed to allow normal voice signal usage of the telephone line(see: abstract, lines 1-13).

Since Struthers already suggests implementation of any suitable communication means into the communications pathway(50, column 4, lines 24-36), and as well, since Struthers already suggests implementation connected to a microprocessor of the controller(20) for allowing intercommunication of data to the controller(46)(see: column 5, lines 4-7), it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the voice and data communication system of Eckley into the communications pathway(50) of Struthers, since this would have allowed transmission of sump(10) data signals to the central controller(46) over an already existing conventional telephone system, and as well without interfering with normal

Art Unit: 2632

telephone usage of homeowners and buildings with which the sumps(10) would have been located.

-- **Claim 24** recites subject matter that is met as discussed in claim 7 above.

5. Claims 8-9, and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Struthers in view of Eckley as applied to claim 7 above, and further in view of Hewlings(3,775,026).

-- **Claims 8-9, and 14** recite subject matter that is met by Struthers except for:

1) the sensing tube, pressure transducer, and wherein the pressure transducer is operable to allow operation of the grinder pump to permitting the level of fluid in a receptacle to go below the bottom of the sensing tube.

Use of level control systems which utilize level sensing means including sensing tubes and pressure transducers which operate pumps to pump fluid from a tank is well known in the art. In related art, Hewlings discloses a pneumatic level control system which utilizes level control means(16) including sensing means in the form of elongated conduits or pipes(17,18) for sensing the level of fluid in a sump(10, column 1 lines 16 et seq). Furthermore, Hewlings also discloses the use of pressure sensing device(20) which causes operation of a pump(25) via switch(24) so as to pump fluid from the well(10) based on the sensed pressure in the pipe(17,18)(see: column 2, lines 15-40).

Since Struthers suggests implementation of several types of level detection devices into the sumps(10) of the sump network system(see: column 3, lines 13-20), it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the level control means(16) including pipes(17,18), pressure

Art Unit: 2632

sensing device(20), and switch(24) of Hewlings into the device(24) of Struthers, since this would have provided suitable means for detecting liquid level in the basin(12).

Furthermore, upon incorporating the means(16) of Hewlings into Struthers, the permitting the level of fluid in a receptacle to go below the bottom of the sensing tube would have been met by set points for the device(24) are established so as to determine operation of the pump(see: column 5, lines 4-20), and therefore based on the set points, the controller(20) would have operated the pump(16) so as to empty the sump, thereby permitting the level of fluid to go below the bottom of the sensing tube(see: column 5, lines 20-30).

As well, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the detector(24) would have been recharged upon emptying of the sump, since emptying of the sump would have allowed the level of waste to go below the tube(17,18) of the sensing device, thereby clearing the device of any waste that would have blocked the device, while the waste would have been at the device level.

-- With regards to **claim 15**, since Struthers allows the waste level set points to be at any desired level(see: column 5, lines 17-19), it would have been obvious to one of ordinary skill in the art at the time the invention was made to control the set point to be such that the fluid is normally maintained above the bottom of the sensing tube of the detector(24), since this would have reduced the frequency of emptying the sump, and thereby reducing the flow of sewage to the network until absolutely necessary.

Art Unit: 2632

-- **Claim 16** recites subject matter that is met as discussed in claim 14 above(see: figure 1).

-- **Claim 17** recites subject matter that is met as discussed in claim 14 above(see: column 5, lines 20-30).

6. Claims 10,12-13, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Potter et al(5,503,533) in view of Struthers and Hewlings.

-- In considering **claim 10**, the claimed subject matter that is met by Potter et al(Potter) includes:

- 1) the modular alarm panel is met by the control panel(12);
- 2) the grinder pump station is met by the tanks;
- 3) the processor for monitoring the station is met by the control processor(16).

- **Potter does not show:**

- 1) the power loss alarm module, modem board, pressure transducer, and generator receptacle.

Use of alarm modules, modem board, and pressure transducers are well known in the art. In related art, Struthers discloses use of a modem for the purpose of communicating data regarding grinder pumps to a central monitoring facility(see: column 5, lines 4-7). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a modem board into the system of Potter and connectable to the processor, since this would have facilitated communication of data from the control unit(16).

As well use of pressure transducers for a grinder pump station is well known in the art. In related art, Hewlings discloses a level control system wherein a pressure sensing device(20) is utilized for the purpose of determining pump operation in a grinder pump station(see: column 2, lines 15-20). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the pressure sensing device(20) of Hewlings into the system of Potter, since Potter suggests implementation of pressure sensors for determining fluid level(see: column 3, lines 8-10), and therefore implementation of the pressure sensor(20) of Hewlings would have provided a reliable means for determining fluid level in the tanks of Potter.

With regards to the power loss high level alarm module, since Potter already discloses a high level alarm module(20, column 4, lines 45-57), it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a power loss alarm into the module(20), since detection and indication of loss of power would have been equally as important, since loss of power would have caused problems such as high level that would have been detrimental to the overall operation of the system. Furthermore, upon incorporation of the power loss alarm into the module(20), it would have also been necessary to incorporate a generator receptacle into the system of Potter, since use of back-up power sources for pump systems are well known, and therefore would have prevent extensive damage to a pump control system by maintaining power to the system in the event of power loss which invariably happens at some point in the life span of a pump control system.

Art Unit: 2632

-- In considering **claims 12-13**, use of level control systems which utilize level sensing means including sensing tubes and pressure transducers which operate pumps to pump fluid from a tank is well known in the art. In related art, Hewlings discloses a pneumatic level control system which utilizes level control means(16) including sensing means in the form of elongated conduits or pipes(17,18) for sensing the level of fluid in a sump(10, column 1 lines 16 et seq). Furthermore, Hewlings also discloses the use of pressure sensing device(20) which causes operation of a pump(25) via switch(24) so as to pump fluid from the well(10) based on the sensed pressure in the pipe(17,18)(see: column 2, lines 15-40).

Since Potter suggests implementation of several types of level detection devices into the system(see: column 3, lines 5-11), it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the level control means(16) including pipes(17,18), pressure sensing device(20), and switch(24) of Hewlings into the device(24) of Potter, since this would have provided suitable means for detecting liquid level in the tanks.

Furthermore, upon incorporating the means(16) of Hewlings into Potter, the permitting the level of fluid in a receptacle to go below the bottom of the sensing tube would have been met by control panel(12) which would have allowed setting and automatic control of the levels in the tanks, and therefore based on the desired level, would have caused operation of the pumps so as to empty the tanks, thereby permitting the level of fluid to go below the bottom of the sensing tube as desired(see: column 2, lines 47-58).

As well, since Potter allows the tank level to be set at any desired level, it would have been obvious to one of ordinary skill in the art at the time the invention was made to control the level to be such that the fluid is normally maintained above the bottom of the sensing tube, since this would have reduced the frequency of emptying the sump, and thereby reducing the flow of sewage to the network until absolutely necessary.

-- **Claim 25** recites subject matter that is met as discussed in claim 10 above.

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Potter et al(Potter) in view of Struthers and Hewlings as applied to claim 10 above, and further in view of Eckley.

-- In considering **claim 11**, use of telephone lines as a communications network for transmitting meter information signals as well as voice signals, and as well overriding of data signal transfer over the telephone line to allow homeowner use of a telephone is well known in the art. In related art, Eckley discloses a system for transmitting voice and data over a conventional telephone line, wherein the system is enabled to selectively switch modes from a composite signal which includes data and voice signals to a conventional telephone operating mode in which digital data signals are bypassed to allow normal voice signal usage of the telephone line(see: abstract, lines 1-13).

Since Potter already suggests implementation of any suitable communication means for communicating information in the system(see: column 2, lines 59 et seq), it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the voice and data communication system of Eckley into the communications bus(16a) of Potter, since this would have allowed transmission of tank

Art Unit: 2632

data signals over an already existing conventional telephone system, and as well without interfering with normal telephone usage of homeowners and buildings with which the tanks would have been located.

8. Claims 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Potter et al(Potter) in view of Struthers and Hewlings, and further in view of Croushore et al(6,278,357).

-- **Claims 18-21** recite subject matter that is met for the reasons of record as discussed in claims 1 and 12-13 above, except for:

1) the modulating the voltage of an A/C current line, generating a series of pulses corresponding to information; detecting the series of pulses in the high voltage line, determining data based on the series of pulses, modulating comprising amplitude modulation.

Use of communications on a power line utilizing amplitude modulation is well known in the art. In related art, Croushore et al(Croushore) discloses a system for implementing communications on a power line utilizing pulse modulation for the purpose of communicating signals between two locations(see: column 1, lines 48 et seq).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the digital communication system of Croushore into the system of Potter in view of Struthers and Hewlings, since pulse amplitude modulation is a well known and reliable method of power line communication which would have ensured proper signal interaction between devices in the system.

REMARKS:

Art Unit: 2632

Response to Arguments

9. Applicant's arguments with respect to claims 1-25 have been considered but are moot in view of the new ground(s) of rejection.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DARYL C. POPE whose telephone number is 571-272-2959. The examiner can normally be reached on M-TH 9:00-7:30.

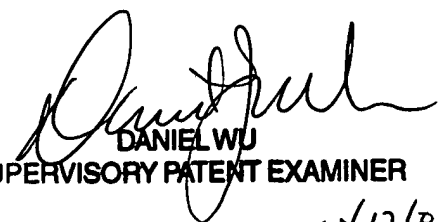
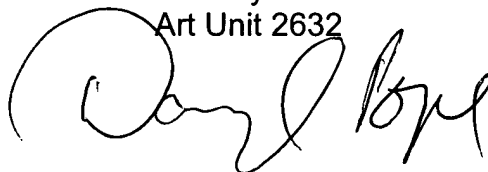
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DANIEL J. WU can be reached on 571-272-2964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Daryl C. Pope

Oct. 16, 2005

DARYL C POPE
Primary Examiner
Art Unit 2632



DANIEL WU
SUPERVISORY PATENT EXAMINER
10/17/05